



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/522,059	01/20/2005	Jun Shinozaki	MAT-8640US	1894
23122	7590	07/14/2010	EXAMINER	
RATNERPRESTIA P.O. BOX 980 VALLEY FORGE, PA 19482			NUCKOLES, TIFFANY Z	
			ART UNIT	PAPER NUMBER
			1716	
			MAIL DATE	DELIVERY MODE
			07/14/2010	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

**Application No.**

10/522,059

**Applicant(s)**

SHINOZAKI ET AL.

**Examiner**

TIFFANY NUCKOLS

**Art Unit**

1716

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 14 April 2010.  
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-9 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☐ Claim(s) \_\_\_\_\_ is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 31 December 2009 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☐ Information Disclosure Statement(s) (PTO/SB/226)  
4) ☐ Interview Summary (PTO-413)  
5) ☐ Notice of Informal Patent Application  
6) ☐ Other: \_\_\_\_\_  
Paper No(s)/Mail Date \_\_\_\_\_

**DETAILED ACTION**

***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

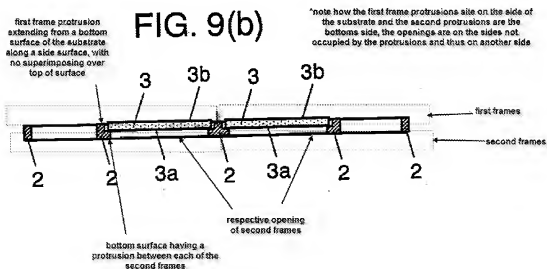
1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

3. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

4. Claims 1, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of U.S. Patent No. 6919569 to Homme et al.

5. Regarding Claims 1, 4, and 8, AAPA teach a method/apparatus for manufacturing a substrate by vapor deposition, comprising:

- a. Providing a substrate holder 1 above a source of deposition material, the substrate holder 1 including:
- b. A plurality of first frames 2 for holding a plurality of substrates 3 of the plasma display panel, the plurality of first frames have a protrusion between them which extends from below a bottom surface of the substrates 3 along a side surface of the substrate without being superimposed over the top surface of the substrate:



- c. A plurality of second frame 2 having an opening 4, the protrusion between the substrate and the opening so that the substrates 3 is on one side of the

- protrusion and the opening 4 is on the other side of the protrusion and an unobstructed path exists from the source of deposition material (through the frame openings 4) to a top surfaces 3b of the said substrates 3;
- d. providing the plasma display panel 3 which is held by the substrate holder 2 for deposition; spraying said deposition material onto said bottom surface 3a of said substrates 3 from below the substrates [e.g. Figs. 9(a), 9 (b) and page 2, line 11 to page 3, line 5, see plurality of substrates 3 and similarities between 9b and 3b].
6. Further, the method shall obviously permit an additional amount of the deposition material to flow through opening 4 (where no substrate is installed) from below the substrate. Still further, since the method/apparatus enables deposition on the lower surface of the substrate, there would obviously be a source of deposition material below the substrate.
7. AAPA does not teach that the protrusion extends to a height above the substrate and is greater than a height of the substrate.
8. Homme et al teach an apparatus/method for deposition comprising a substrate holder for a solid state device for deposition on a substrate 1, the substrate holder being configured with a frame having a protrusion, the protrusion extending from below a bottom surface of the substrate 1 along a side surface of the substrate without being superimposed over the top surface of the substrate (e.g. Figs. 7, 8 and col. 4, lines 16-49).

9. Therefore it would have been obvious to one of ordinary skills in the art at the time of the invention to provide the protrusion in the substrate holder that extends to a height above the substrate and is greater than a height of the substrate as taught by Homme et al in the apparatus of AAPA to control any deposition products from depositing on the backside of the substrate.

**10. Claims 2 and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of U.S. Patent No. 6919569 to Homme et al, as applied to claims 1, 4, and 8 above, and in further view of U.S. Patent Application No. 2004/0083976 to Meyyappan.**

11. In regards to Claims 2 and 5, AAPA in view of Homme et al teach the heights of protrusion (the protrusion having separate heights as it surrounds said substrate such that it has separate walls intersecting each other) being greater than height of substrate but do not teach the heights of protrusion is between 1-100 mm.

12. Meyyappan teaches a deposition apparatus and method for processing a substrate 26 wherein a ring 30 is provided (substrate support) around the substrate to prevent coating on backside of the substrate. Meyyappan further teaches that the ring 30 has an edge shielding portion 36 whose height is optimized to prevent the substrate from sliding-off the substrate support (Fig. 2 and para. 0008, 0012, 0016, and 0021).

13. It has been held that it is obvious to one having ordinary skill in the art to have determined the optimum value of a cause effective variable through routine experimentation in the absence of a showing of criticality. *In re Woodruff*, 16 USPQ2d 1934, 1936 (Fed. Cir. 1990). Therefore it would have been obvious to one of ordinary

skills in the art at the time of the invention to optimize the heights of the protrusion of the substrate holder as taught by Meyyappan in the method of AAPA in view of Homme et al to provide support to the substrate and control deposition on backside of the substrate.

**14. Claims 3 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of U.S. Patent No. 6919569 to Homme et al, as applied to claims 1, 4, and 8 above, and in further view of U.S. Patent No. 5374147 to Hiroki et al.**

15. Regarding Claims 3, 6: AAPA in view of Homme et al teach all limitations of the claim including substrate holder (frames) 1 for holding substrates, and in Fig. 9b/Prior Art of the instant application, shows a plurality of substrates, but do not teach holding means including supporting means and positioning means.

16. Hiroki et al teach an apparatus and method for supporting a substrate 2 by a frame 73 and where the frame comprises support means 88 and positioning means (83, 84 with stoppers 85, 86) for positioning the substrate 2 in a planar direction, wherein the substrate is held by fitting the substrate to the positioning means (83-86) and placing the substrate on the support means 88 (e.g. Fig. 12 and col. 10, lines 13-63).

17. It would have been obvious to one of ordinary skill in the art at the time of the invention to use frame with support means and positioning means as taught by Hiroki et al in the apparatus and method of AAPA in view of Homme et al to ensure correct positioning of the substrate.

**18. Claim 7 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of U.S. Patent No. 6919569 to Homme et al, as applied to claims 1, 4, and 8 above, and in further view of U.S. Patent No. 6355108 to Won et al.**

19. In regards to Claim 7, AAPA in view of Homme et al teach all limitations of the claim including first frame 1 for holding the plurality of substrates, but do not teach first frame includes a plurality of tabs separated from each other which extend below the bottom surface of the substrate.

20. Won et al teach a deposition apparatus and method comprising a frame 22 with plurality of tabs 26. Won et al also teach that the tabs 26 support the substrate 28 on the deposition face and are shaped to accommodate the substrate 28, and comprise protruding contact surfaces for stabilizing a substrate on a support member during processing (e.g. Fig. 3, 4 and col. 5, line 25 to col. 6, line 35) [since applicant's specification does not explicitly describe any "tab", examiner has interpreted that the plurality of tabs as claimed refer to "Support 6a" in Fig. 6 - applicant is invited to confirm this]. Further, though, Won et al do not explicitly teach the tabs extend below the bottom surface of the substrate (during processing), the tabs 26 as taught by Won et al would obviously extend below the substrate in case frame 22 was used upside down with a deposition source disposed below the substrate.

21. It would have been obvious to one of ordinary skill in the art at the time of the invention to provide the first frame with a plurality of tabs as taught by Won et al in the



apparatus and method of AAPA in view of Homme et al to stabilize the substrate on the frame during processing.

**22. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Applicant's Admitted Prior Art (hereinafter referred to as AAPA) in view of U.S. Patent No. 6919569 to Homme et al, as applied to claims 1, 4, and 8 above, and in further view of U.S. Patent No. 6397776 to Yang et al.**

23. In regards to Claim 9, AAPA in view of Homme et al teach all limitations of the claim except the protrusion curves away from the plurality of substrates.

24. Yang et al teach a method for deposition on a substrate comprising a two source array 15 for deposition on substrate 12. Yang et al further teach that a curved substrate holder is used for simulating curved surfaces for curved substrates (e.g. Fig. 1 and col. 10, lines 1-15). It would be obvious to use substrate holder with a protrusion that curves away from the substrate as per teaching of Yang et al to enable support substrates with curved surfaces.

25. Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to provide the substrate holder with a protrusion that curves away from the substrate as taught by Yang et al in the apparatus and method of AAPA in view of Homme et al to enable support substrates with curved surfaces.

### ***Response to Arguments***

26. Applicant's arguments with respect to claims 1-9 have been considered but are moot in view of the new ground(s) of rejection, which are necessitated by the amendments to the claims. AAPA treats a plurality of substrates with a plurality of first

and second frames, the protrusions of the first and second frames holding substrate such that they are different sides and the respective openings are on another side of the protrusions as they are on sides not occupied by the protrusions and thus meet the recited limitations of the claims.

27. Furthermore, it would have been obvious to one having ordinary skill in the art at the time of the invention was made to duplicate the parts of the substrate holders such as the frames, holes, and protrusions, for the predictable benefit of being able to hold more than one substrate at a time, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in the art. *In re Harza*, 274 F.2d 669, 124 USPQ 378 (CCPA 1960). MPEP 2144.04 VI-B. Applicant argues that there are not a plurality of frames

### **Conclusion**

28. Applicant's amendment necessitated any new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

29. A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

30. Any inquiry concerning this communication or earlier communications from the examiner should be directed to TIFFANY NUCKOLS whose telephone number is (571)270-7377. The examiner can normally be reached on Monday through Friday 9:00AM - 5:30 PM.

31. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

32. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/TIFFANY NUCKOLS/  
Examiner, Art Unit 1716

/Parviz Hassanzadeh/  
Supervisory Patent Examiner, Art Unit 1716